



**ENGINEERS
AUSTRALIA**
Western Australia
Division

Broome to Java Submarine Telegraph Cable



Photo: Broome Courthouse

Historic Engineering Marker
Commemorative Plaque
Unveiling Ceremony

Broome - Western Australia

Friday 15 September 2006
Shire of Broome Offices
Corner Haas and Weld Streets

PROGRAM

Welcome

President Graeme Campbell
Shire of Broome

Traditional Welcome from Local Indigenous Leader

Introduction to the Plaquing Program

Don Young FIEAust CPEng
Secretary, Engineering Heritage Panel
Engineers Australia, WA Division

History of the Broome to Java Submarine Telegraph Cable and Unveiling of the Commemorative Plaques

John Phillips FIEAust CPEng
President
Engineers Australia, WA Division

Acceptance of the Commemorative Plaques

Graeme Campbell
President
Shire of Broome

Thanks

President Graeme Campbell
Shire of Broome

Afternoon Tea

Visit to Plaque Locations at Court House and Cable Beach

THE DEVELOPMENT OF THE ELECTRIC TELEGRAPH NETWORK

One of the marvels of the mid-nineteenth century was the electric telegraph. Major technological advances by British and European inventors and the creation of a standard code by the American, Samuel Morse, paved the way for the rapid expansion of communications systems throughout the world. In 1850 the first submarine cable was laid between Dover in England and Cape Gris Nez in France. Soon there was a boom in cable production and British companies were formed to lay cables to all parts of the globe. After several costly unsuccessful attempts Brunel's legendary iron ship *The Great Eastern* in 1866 laid the first trans-Atlantic cable. By 1870 there were submarine cables linking the UK to Suez and to Singapore.

THE AUSTRALIAN CONNECTION

In 1870 the British Australia Telegraph Company [BAT] was formed to link Australia directly to the British telegraphic cable system, by extending the cable from Singapore via Java to Port Darwin. In 1873, three British companies, The British India Extension Telegraph Company, The BAT and The China Submarine Telegraph Company were amalgamated to form the Eastern Extension, Australasia and China Telegraph Company [EET Co]. The driving force behind the British cable companies was a Scottish born entrepreneur Sir John Pender (right), founder of Cable and Wireless.

In 1872 Australia was connected telegraphically with the rest of the world after a cable was laid by BAT from Banjoewangie [at the eastern end of Java] to Darwin. This coincided with the completion of the construction of an overland telegraph cable from Adelaide to Darwin. The first message sent directly from London to Adelaide occurred on 22 October 1872. A second submarine cable from Java to Darwin was laid in 1880.



Sir John Pender, Founder of Cable and Wireless

THE JUSTIFICATION FOR THE BROOME TO JAVA CONNECTION

Due to frequent breaks in the Banjoewangie to Darwin cables as a result of volcanic activity in the Timor Sea there arose an urgent need to lay a third cable from Java to Australia, ostensibly away from the seismic zone. *(Since the science of plate tectonics did not evolve until the mid 1960's the planners could not have been expected to know that the security to be provided by the new cable was somewhat illusory.)* In fact the operating cable from Broome to Java was ruptured by seismic activity on 11 July 1890.

PRELIMINARIES TO THE CABLE LAYING CONTRACT



Sir Malcolm Fraser,
Colonial Secretary of
Western Australia 1883
- 1890

On 11 July 1888 Sir John Pender, the Chairman of EET Co. submitted a proposal to the Right Hon Lord Knutsford, Secretary for State for the Colonies in the British Conservative Government, to lay a cable from Banjoewangie to Beagle Bay in Western Australia. After a further exchange of telegrams and letters between the Colonial Office and EET Co it was established that because Broome had already direct telegraphic communication with Perth, and thence via Eucla, to the other Australian Colonies, Roebuck Bay would be a preferred termination location for the cable from Java. Correspondence between EET Co, Lord Knutsford and the Governor of Western Australia, Sir Frederick Napier Broome [after whom Broome is named], established that the existing telegraph station at Broome was not large enough to accommodate the staff to operate the Broome to Java connection. Consequently an Agreement, signed for the Colonial Administration by its Secretary, Sir Malcolm Fraser (left), was drawn up whereby EET Co was permitted to land the cable at the selected landing place in Roebuck Bay and was granted up to eight acres of land on which to construct a cable station and lay the subterranean cable.

THE CONTRACT EXECUTION

The contract called for the manufacture of 940 nm (later increased to 970 nm) of cable containing a single galvanized copper core with 220 nm being brass sheathed. (One nautical mile = 1.15 land miles = 1.85 km)

The manufacture of the cable commenced in the UK on 15 August 1888 and was completed on 14 November 1888. Daily testing confirmed that the cable condition was electrically perfect.

Loading of the cable onto the cable ship CS Seine commenced on 15 December 1888 and was completed on 23 December. The departure of the ship from the Thames was delayed until 31 December in order to receive the iron framework and fittings of the building designed to be the Cable Station at Broome. The CS Seine, under the command of Captain Seymour, arrived in Singapore on 7 February, 1889, where EET Co's Superintendent, Mr H W McPherson and electrical engineer, Mr J L Clark, of Clark, Forde and Taylor, joined the ship.

The CS Seine took on a full load of coal at Singapore, and, after receiving a somewhat unwelcome deck cargo of timber for the Broome Cable Station, departed Singapore on 10 February, arriving off Banjoewangie four days later. A buoy was placed off Kujur Point to mark the start of the cable run and the ship then anchored off Banjoewangie. Arrangements were made with the local Superintendent to take delivery of pipe and cable to make the subterranean connection between the Cable House and the Cable Station at Banjoewangie.

After some careful probing to locate the 1870 and 1880 Darwin cables the new cable was laid from the shore to the marker buoy on 17 February and the laying proceeded uneventfully towards Western Australia, arriving off Broome on 23 February, having laid 845.73 nm of cable. The seaward cable was buoyed and after three further days, on 26 February, the section of cable to the beach was drawn and spliced to the Banjoewangie end. The final length was 890.6 nm and the greatest depth to which it was laid was 2900 fathoms [5300 metres]. It was indeed fortunate for the enterprise that no cyclonic storms occurred during the transit to Western Australia.



Submarine cable laying in progress.

The unloading of the materials for the Cable House was undertaken by lowering the building sections overboard at high tide onto the sandy sea bed and recovering them manually at low tide. The Cable House was constructed on the landward side of the sandhills.

The unloading of the materials for the Cable Station took place in Dampier Creek, on the eastern side of the Broome Peninsular. The tidal range at the time was of the order of 28 feet and there was an expanse of at least 250 yards of mud flat exposed at low water. To the seaward of this the water deepens so slowly that the *Seine* would have had to anchor a considerable distance from the shore, so that the transport of the various heavy and cumbrous packages in the ship's boats would have been an extremely slow process and probably have lasted months, even if practicable under the circumstances.

Fortuitously it was the cyclone season and the schooner *Sagitta* was one of several boats of the pearling fleet sheltering in Roebuck Bay. The Captain of the *Seine* negotiated with the Master of the shallower draft *Sagitta* to come along side the *Seine* while it was anchored in Dampier Creek and each time transfer a considerable quantity of material which could be later discharged near the shore by throwing overboard at high water. When the tide went out the material was recovered and carried up the creek to be stored on the beach. The *Seine* departed for Banjoewangie on 9 March leaving Superintendent McPherson and a number of staff, tradesmen and Chinese "coolies" to complete the building and equipping of the Cable House and Cable Station.

Between 3 and 9 March 1889 the prefabricated iron work and timber components of the Cable Station unloaded at the Dampier Creek beach were transferred to the Station site and then erected on the land now bounded by Frederick, Hamersley, Stewart and Weld Streets.

A comment in the Engineer's report stated that "it seemed a pity to treat polished teak in this way, but no other way was practicable and no real harm was done although the appearance suffered a little."

EET Co's Station Superintendent, Mr McPherson, subsequently became the first Justice of the Peace in Broome.

THE CABLE COMPANY OPERATIONS

The line was open for public business on 9 April, 1889 when the first paid cable was sent to London by Mr E Keane of Perth.

Many employees of the EET Co were recruited at a young age, 15 to 16 years. They were given rigorous training in cable telegraphy and on the satisfactory completion of a probationary period were liable to be transferred to any of the Company's world wide network of cable stations and ships. The Company set high standards of proficiency and behaviour and failure to maintain them could lead to dismissal. But no matter how difficult the conditions, many operators stayed with the cable service all their working lives.

EET Co staff employed at Broome probably had comparatively good working conditions. A report in the newspaper, the "Inquirer", dated 6 December 1889, referred to the building as :

"A palatial iron-structure, raised on stone pillars about four feet above the ground and surrounded by a wide verandah double-roofed, the rooms lofty and lined with wood with a splendid billiard room attached. The directors of the Cable Co. are most exemplary fathers"

The same newspaper on 18 April 1890 gave a general description of Broome :

".... Two stores, the cable telegraph building, the WA telegraph office and two or three other houses. The buildings are creditable especially those of the Cable Telegraph Company which stand as a pattern and example to this colony, being built expressly in such a manner as to suit the climate and allow as much comfort as is possible in these trying tropical regions."

CLOSURE OF THE BROOME CABLE STATION

EET Co ceased operating from the Broome Station in March 1914. The company had faced competition from the operators of a cable link to the UK through Canada and across the Pacific via New Zealand and in 1901 EET Co had a cable laid across the Indian Ocean via the Cocos Islands to Cottesloe. The loss of business to the Cottesloe station, plus the change in migration policy which made it difficult for EET Co to retain and replace the lower paid "imported" servants who looked after the staff and equipment, prompted the company to close the Broome station. Most of the cable was subsequently recovered.

POSTSCRIPT

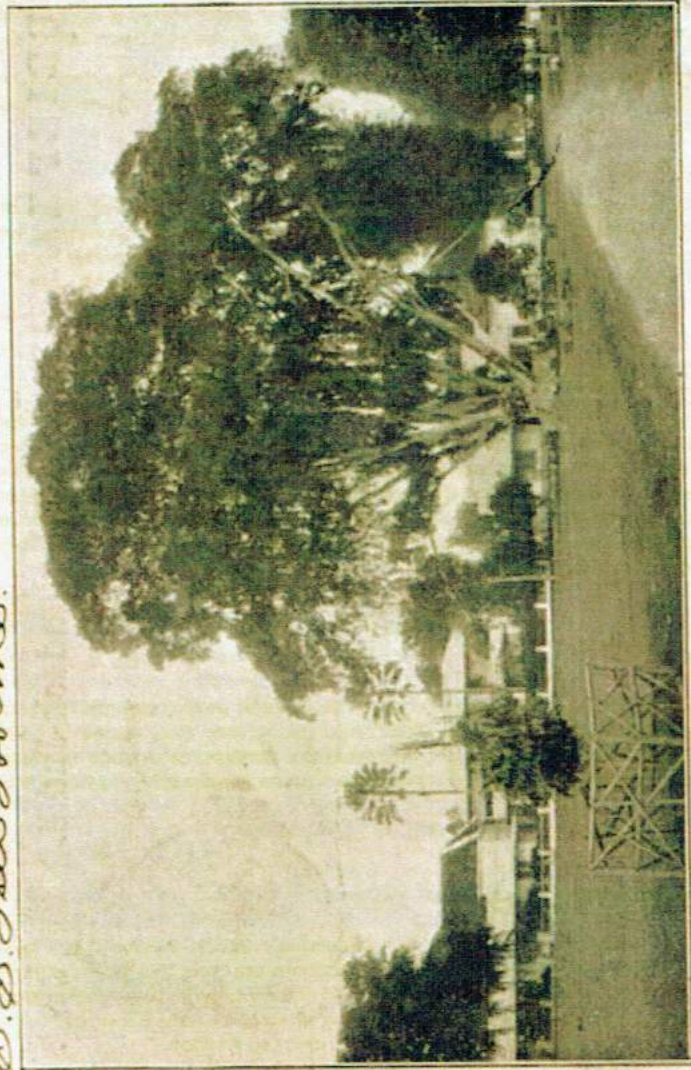
The former Cable Station building, having been vacated for several years, was purchased by the Western Australian Government in 1921 for 3000 pounds. It was then converted into a Court House at a cost of 1100 pounds. It is now vested in the Ministry of Justice of Western Australia. The building was placed on the Western Australian State Register of Heritage Places in 2001.

ACKNOWLEDGEMENTS

The Institution of Engineers Australia administers the Australian Historic Engineering Plaquing Program, commemorating outstanding engineering achievements and has this year judged the Broome to Java Submarine Telegraph Cable to be worthy of Historic Engineering Marker status. It wishes to acknowledge the assistance given by the Shire of Broome, the Broome Historical Society and the Cable Beach Club Resort in bringing this project to fruition.

Don Young FIEAust CPEng

S. S. Joel Holmes.



Engelsch Telegraafkantoor met Woonhuizen der Beamten te Banjoewangi.
 A souvenir of my pleasant visit to the
 office of the "Eastern Telegraph Company"
 at Banjoewangi (Java). Dec. 10th 1901. Jessie Ritchie
 MARTEN & CO.

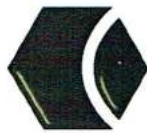


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HISTORIC ENGINEERING MARKER BROOME TO JAVA SUBMARINE TELEGRAPH CABLE

THE 1650 KM LONG CABLE FROM BANJOEWANGIE, JAVA, TO BROOME WAS LAID FOR THE EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH COMPANY, LIMITED BY THE TELEGRAPH CONSTRUCTION AND MAINTENANCE COMPANY USING THE SS SEINE. THE SUPERVISING ENGINEERS WERE CLARKE, FORDE AND TAYLOR. THE OPERATION TOOK TEN DAYS AND THE CABLE CAME ASHORE ON 26 FEBRUARY 1889, HENCE THE NAME CABLE BEACH. THE CABLE LINK TO EUROPE GREATLY FACILITATED THE DEVELOPMENT OF THE BROOME AND KIMBERLEY REGIONS.

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